

### **ABSTRACT OF THE DISCLOSURE**

LDPC (Low Density Parity Check) coded modulation hybrid decoding. A novel approach is presented wherein a combination of bit decoding and symbol level decoding (e.g., hybrid decoding) is performed for LDPC coded signals. Check node updating and  
5 symbol node updating are successively and alternatively performed on bit edge messages for a predetermined number of decoding iterations or until a sufficient degree of precision is achieved. The symbol node updating of the bit edge messages involves using symbol metrics corresponding to the symbol being decoded as well as the bit edge messages most recently updated by check node updating. The check node updating of the bit edge  
10 messages involves using the bit edge messages most recently updated by symbol node updating. The symbol node updating also involves computing possible soft symbol estimates for the symbol during each decoding iteration.